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PARALYSIS.



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HOME TREATMENT

OF

PARALYSIS.

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BY

R. NEWTON TOOKER, M. D.

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INTRODUCTION.

In the following pages, which are written for the general rather than the professional reader, no attempt will be made to give a scientific classification of the various forms which Paralysis may assume, nor to discuss the multitudinous causes that operate in its production.

Our task is the more practical one of showing a means of cure, leaving the discussion of interesting, but unprofitable theories to those who prefer wisdom to knowledge. Wisdom may be acquired from books, but knowledge is the offspring of experience. An extensive familiarity with paralytics during a period of six years in a public institution, where the most elaborate means were employed, both for purposes of diagnosis and treatment, has shown us that while two cases are seldom found precisely alike in origin and course, and while different—often-times widely different—medicinal means are necessarily employed in the successful treatment of cases, yet all cases of true Paralysis are sufficiently similar in their requirements to be grouped together and spoken of in general.

Let it be distinctly understood that we do not mean by this that all cases are to be classed together and treated alike. On the contrary, the treatment of various cases must always be varied according to their various conditions and requirements. But, as we shall see further along, there comes a time in nearly all cases, when the causes which produced the Paralysis have disappeared, and instead of disease to combat, we have only results to meet, a time when the conditions are the same and the requirements the same. At least, this is especially so of the auxiliary means which we seek here to explain and enforce. The importance of these auxiliary measures cannot be over-estimated. Indeed, we assert boldly, that the measures here ad-

vocated, or some modification of them, are essential to the restoration of each and every case of true Paralysis; and that the success of the cases treated by us, either at our cure or elsewhere, has been due, in a very large measure, to the zeal and energy with which these auxiliary measures herein enforced have been carried out.

The reason of these measures, the sound philosophy underlying them, will be gathered as we proceed to discuss the "Nature" and the "Causes of Paralysis." Let no helpless one object to them because they are simple, nor fail to give them a fair trial because he has "tried that before, and it did me no good." "Are not Abanar and Parphar, rivers of Damascus better than all the waters of Israel? may I not wash in them and be clean?" said Naaman, when told to wash in the Jordan and be healed of his leprosy. To those who would object to using, steadily and persistently, the exercise and the other simple, but potent, measures which are here detailed, let my answer be that of the servant to the Syrian captain: "*If the prophet had bid thee do some great thing, wouldst thou not have done it?*" How much rather, then, do these things, which, though seemingly simple and powerless, are of demonstrated utility.

We are fully aware of the temptations that are likely to beset the paralytic on the threshold of the efforts we seek to inaugurate. Old habits of ease and undisturbed quiet will have to be broken up. The mind will continue, as formerly, to seek for help in some other way less laborious and wearisome—some royal road to health—rather than the one we lay out, which requires hours of daily toil. But let it be understood that there is no royal road—indeed no road but this. All that medicine can do will be accomplished by the remedies we send to each one who receives this book, and that beyond the sphere of any and all remedies which can only make motion possible, the patient himself or herself must, by effort and continuous, persistent trials, make the possibility a fact. "Therein the patient must minister to himself."

In order to a just understanding of what follows, certain definitions of terms are necessary to be given.

The term Paralysis denotes either loss or impairment of the power of muscular action ; and, also, absence or diminution of general or special sensibility. In the former case, it is termed Paralysis of motion ; and in the latter, Paralysis of sensation. Paralysis of motion may take place either with regard to voluntary or involuntary muscles. The stomach, intestines, bladder, heart, or lungs may be paralyzed, either separately or incidentally, in connection with other parts or organs ; but the treatment of these special organs will not be detailed here. We shall confine ourselves especially to motor Paralysis, or Paralysis affecting voluntary power over muscles.

In some cases motion and sensation are affected conjointly, but such cases are far less frequent than cases in which motion is alone affected, but are more frequent than those cases where the Paralysis affects sensation without motion.

Paralysis may be complete, producing a total loss of power or feeling, or incomplete, where there is only *diminution* of motion or sensation.

The Paralysis may be general, partial, or local. It is general when the power of volition is lost or impaired over the greater part of the voluntary muscles. Loss of power over both the upper and lower extremities constitutes General Paralysis. In partial Paralysis, only a limited portion of the voluntary muscles is affected. It may be limited to even a single muscle or group of muscles. The majority of the cases of Paralysis belong in this category. The most frequent forms of partial Paralysis are hemiplegia and paraplegia. In hemiplegia, the Paralysis affects the power over the muscles of one side of the body, including the arm and leg. In paraplegia, the Paralysis affects the power over the two upper or the two lower extremities, more frequently the latter. A common classification of Paralytic Affections is into Brainsl and Spinal—a distinction founded on the location or origin of the Paralysis, whether in the Brain or Spinal marrow.

The object of the present treatise will make it necessary only to consider Paralysis of motion. When sensation is affected, either alone or conjointly with motion, the treatment here

advocated, though not sufficient to affect a complete restoration, will be right as far as it goes. Other measures and means addressed especially to the sensory nerves, are necessary in such cases, but they need not be detailed here.

It may, however, be stated as a general rule, to which there are rare exceptions, that in cases where sensation is paralyzed as well as motion, the latter is regained in advance of the former, or, at least, conjointly with it.

It must be borne in mind by all who read these pages, that they are written for all, and contain only such general directions as are suitable and profitable for all. Each case of Paralysis, however, is more or less unique and exceptional, and requires special directions to meet its special requirements. These special directions we aim to give in the special letters of advice we send to every case we undertake, and thus render complete what could never be done in print.

Every case of Paralysis, whatever may have been its cause, or what its character, presents, during its history, three well marked stages or periods. They are the stages of Invasion, of Duration, and of Reaction.

The first stage, which we call the stage of invasion, is the period during which the affection is coming on, and it may last for days, weeks or months, or be only momentary. The second stage—the stage of duration—is not always so marked in its limits, but is used to indicate the period following that of invasion, and during which there is little change for better or worse. It may be very brief or indefinitely prolonged, but is usually followed, sooner or later, by the last stage or period of reaction, when nature, either aided or unassisted, evidently makes an effort to repair the damage that has been done. It is during this last stage that the paralytic, if he has been hopeless before, takes courage and crutches, and hugs to his heart the delusive hope that, being on the mend, he will soon be restored to his full powers again. We call this a “delusive hope,” because the general experience of paralytics is unfortunately a series of tedious disappointments. In exceptional

cases, indeed, when the first stage is only brief, and the second still more so, and reaction follows quickly and thoroughly, all traces of Paralysis may pass away in a few days or weeks. But such cases are rare. The more common experience is that reaction is slow to begin, and then is only partial; and long before there is a perfect restoration of power, it ceases altogether, or so nearly ceases, that the patience and hope of the victim are well-nigh exhausted, and the crutches that were gotten as temporary expedients, come to be regarded as old, and inseparable friends.

The object of this treatise is to bring to such an one a resurrection of his hopes; to show him the simple but potent means whereby scores of paralytics, regarded as past all help, have been fully and quickly restored, and by which scores and hundreds more, we fully believe, are destined to resume their lost powers of enjoyment and usefulness.

CAUSES OF PARALYSIS.

In seeking for the cause of Paralysis, in any given case, we must look for it in the nerve centers—the brain or spinal cord—where all motor and sensory power originate; or in the nerve conductors, whereby the transmission and distribution of the nerve-force is effected; or, lastly, in the muscular structure itself, which, as will be seen by reading the “Nature of Paralysis,” may have so far *degenerated* as to be incapable of normal action, even though the nerves be in health.

The exact nature of the lesion which may occur in the various portions of the nervous system, and act as a cause of Paralysis, may be as various as the cases themselves. We can only enumerate a few of the causes which are more common.

Among these are congestion of the brain substance, as the result of excitement or inflammation; the rupture of some of the small blood-vessels which supply the parts with blood, as the result of accident or disease; hardening or softening of the nerve substance; tumors or morbid growths within, or impinging upon the nerves or their centers; retained urinary or biliary secretions, which act as poisons to the nerve tissue, and also the poisons of Syphilis, Rheumatism and Gout; also poisons introduced into the system in the course of officious and careless medication—indeed, the worst and most intractable cases of Paralysis we have ever seen, were those where the system had been saturated and surcharged with drug compounds, vegetable and mineral.

So, also, any morbid process which greatly impairs the natural structure of nerve matter or the muscular tissue, may act as a paralyzing lesion. The exhaustion of vitality, and the

wasting of muscular substance, following protracted illness of any kind, may induce a species of Paralysis. This is especially true of those acute diseases which seriously affect the character of the blood, as diphtheria and the continued fevers. Of Nervous Exhaustion, as a cause of Paralysis, we have spoken at length in another place. Lastly, any cause capable of temporarily overwhelming the nerve centers, such as sudden fright, anger, and in infancy, the prolonged and continuous irritation incident to the process of teething, may cause Paralysis, by too rapid exhaustion of vital force.

It will be observed by the intelligent reader, that among the causes of the paralytic condition above named, the most of them are but temporary in their nature, and that, after acting a certain length of time, they must become inoperative. For instance, if the Paralysis be due to an apoplectic clot or a tumor pressing upon the brain substance or a nerve center, the ever busy absorbents will eventually remove it. If it be from poisons affecting the function of the nerves in the manner previously described, these poisons will also be removed or cease to act as poisons.

It is, therefore, altogether probable that the large proportion of the cases that occur, ought, eventually, to get well. And our experience in the treatment of the affection convinces us that such is the case.

More than three-fifths of the cases we meet, without regard to the length of time they have been afflicted, are curable, under judicious treatment, and many of the balance can be greatly relieved, and their usefulness very greatly increased.

THE NATURE OF PARALYSIS.

In order to make our method of treatment intelligible, it is necessary to understand something of the Nature of Paralysis. It must be clearly comprehended, that whether it be general or local, and no matter how it may have originated, whether in a sudden "*stroke*," or gradual in its approach, it is ever and always an *effect* following a cause, and is not in itself a disease.

Something interferes with the life of a muscle, and it ceases to act. This *something* may be of such a nature as to affect the muscle in its nutrition, so that it shrivels and withers away ; or it may, as more usually happens, be in the form of an obstruction to the passage of *nerve force*, so that the muscle is cut off from communication with the brain or the spinal marrow—its source of power.

A muscle cannot live and be strong without plentiful supplies of good, rich blood, any more than a plant can live without water ; and it can not move unless the *will* can reach it through the nerves, any more than a dead body can rise up and walk after the vital spark has left it. Two things, therefore, are essential to voluntary motion—blood and nerve force.

Faulty circulation of blood in muscles is very rarely a cause of Paralysis *in the beginning*, though it often prevents the part from regaining its lost power, after the cause of the Paralysis has disappeared, as we shall show by-and-by. The more frequent cause is some trouble of the nervous system.

When we use the term "*nervous system*," we mean the brain, the spinal cord (or marrow), and the nervous threads which run to and from the brain and spinal marrow, and connect them with every part of the organism. Every minutest cell of every tissue of which the body is composed, is thus connected, so that

when the body is in health, a cambric needle can not be thrust in the flesh anywhere without injuring one of these "nerve conductors," and producing a sensation of pain. These nervous threads are the telegraph wires of the body. The brain and spinal cord are the *batteries*, where all volition and sensation originate.

Now, in order that we may exercise volition, it is necessary that these nerve centers, or batteries, shall be in health, and that no obstruction or disease shall exist anywhere in the course of the nerve conductors. It is also equally necessary that the *muscular structure*—the part that is to move—shall be in a physiological condition, in order that it may understand and obey the impulse which is sent to it by the brain. If any of these conditions are absent, motion will be impossible. If one of these nerve conductors, for example, be severed in its course, and communication thereby interrupted between the brain and the muscle to which the nerve is distributed, the part thus cut off from the center is rendered powerless—is *Paralyzed*. So, also, if a nerve be pressed upon to any considerable extent, anywhere in its course, by any means, the effect is precisely the same as if the nerve were severed at the point of pressure.

This is the accident that most commonly happens as a cause of Paralysis. In apoplexy the brain becomes congested, surcharged with blood, and some one of the blood vessels supplying the brain, not being able to withstand the pressure, is ruptured, and an effusion of blood takes place into the nerve substance, obstructing or impeding its function, until it is removed. That such an obstruction will be removed, sooner or later, is plain, from examples of similar occurrences elsewhere. When a finger is struck with a hammer, some of the fine blood vessels under the skin are ruptured, and blood oozes out, producing a *blood-blister*. This effusion of blood acts as a foreign body—that is to say, it is a source of irritation, and continues to be so till it is removed by the absorbents.

These "absorbents" are everywhere present throughout the organism, and it is through them that obstructions, effusions, clots and foreign substances are always removed from the tissues, where they would, if left to remain permanently, be con-

stant sources of irritation and disease. The action of the absorbent system is seen in the subsidence of warts, tumors and swellings, which are the result of inflammation.

Whenever these occur, the absorbents set to work, and soon, noiselessly, but surely, the abnormal growth or deposit, or whatever it be that is not homogeneous with the tissues, is taken down little by little, cell by cell, and carried out of the system.

These absorbents, being, as stated, everywhere present, are in the brain as well as elsewhere; and, if an effusion take place within the brain substance, or if a blood clot be formed there as the result of a rupture of any of the fine blood vessels, the absorbents are sure, sooner or later, to attack and remove it, just as they are seen to do in the case of blood-blisters.

So that obstructions of this nature—and they are by far the most common of the paralyzing lesions—are sure to be removed in the course of time, by the agents which nature has appointed for the purpose; and these obstructions or impediments, after having acted for a time as such, must cease so to act, and a perfect restoration take place, so far as the cause is concerned.

Usually this process of absorption is a rapid one, and the effusion of blood, or serum, or whatever it may be, having taken place as the result of accident or disease, is soon out of the system and out of the way.

When the cause is not of the nature of a “blood clot,” but of a metallic character, as in Lead Palsy, or in the Paralysis from Mercury, then we have the means of reducing these particles, and rendering them soluble, so as to bring them within the power of the absorbents.

But, in general, the cause producing the Paralysis is speedily removed in the manner we have indicated, by nature’s unaided efforts; and hence it may be asked, “Why, then, do not the parts that have been paralyzed resume, without delay, their wonted function, and act with all their former power?” We answer, that very often they do so. Persons are frequently stricken with Paralysis, and recover their full power within a few days or weeks thereafter, and that with little, if any, arti-

ficial aid. These cases can be explained on no other hypothesis than the one here given.

The reason why *all* do not thus speedily recover, the causes being the same, is because the process of absorption is oftentimes a slow one, weeks, or even months, intervening between the occurrence of the "stroke," and the entire subsidence of its cause; and even after the *cause* has been thus slowly removed, the Paralysis may still linger without change, for reasons which we will endeavor to make plain. It is to this point we desire especially to direct the attention of the intelligent paralytic.

During the presence of the exciting cause, and while the muscle was deprived of its nerve force, a change was going on involving the character of the muscular structure—a change known to physiologists as "*retrograde metamorphosis*," or "*fatty degeneration*."

This change may be clearly explained. Muscles grow daily and hourly, and every moment—every contraction of fiber—when in health, effecting a change in its composition; the worn out particles, which have served their purpose and been rendered useless, being thrown out, and new particles from the blood taking their places. This interchange between the tissues and the blood—the tissues constantly decaying and as constantly being renewed—constitutes the process of Nutrition. When the process is carried on effectively and naturally, we may be said to be in health; our muscles preserve their elasticity and power. But when, from any cause, the process is imperfect, when nutrition lags, the muscle loses its elasticity and its power, and degenerates. Sometimes it grows smaller and becomes flabby, but a wonderful change may take place in the character and composition of a muscle without its losing its bulk or firmness. Instead of withering away, as it often does, it may suffer only this change in character, fat being substituted for muscle. *Any muscle is liable to this change when unused.* A horse well fed and stabled grows fat, and loses his racing qualities, if he be not exercised. An arm carried in a sling for weeks is nearly helpless when first taken out. In both cases, fatty metamorphosis has taken place—the muscle is filled with fat. Fat cells, inelastic and powerless, have taken the place of muscle cells.

Now, to recur to the case of Paralysis; where the muscle or muscles of a limb have been unused for weeks, during the presence of the paralyzing lesion, although the cause has finally subsided, and there is no longer any reason for the helplessness *in the nervous system*, yet the muscular structure has so far degenerated, by reason of this prolonged inactivity, as to be incapable of motion, on account of this fatty change, and cannot act with any power until the muscular structure is restored to its normal condition.

This fatty condition must be overcome and wholly changed before any considerable power of motion will be possible. It may be said, therefore, that paralysis of the whole or a portion of the muscular structure, becomes, after a time, a *condition* (not a disease), due, to a very large extent, to the change that has taken place in the affected muscles during the action of the paralytic lesion, and before its subsidence. This is especially true in those cases where the Paralysis remains for some weeks or months after its first appearance. The invalid is sound and well in all respects and in all parts, save in those where his helplessness lies. He is a man in mind, but a babe, weak and helpless, in the parts that are paralyzed. He has, as it were, lost the power of motion, and must learn it afresh.

This explanation of the nature and condition of the Paralysis applies to four-fifths of the cases coming under the notice of the physician for treatment. There is no enemy in the system to be cast out, only a *condition* to be changed. The means of cure must answer this condition, or fail to effect a restoration. Means must be provided for restoring the degenerate muscles to their normal condition.

These fat cells must, by some means, be worked into muscle cells. The normal circulation of blood must be re-established. Nutrition, which has become languid and imperfect, must be perfected, before healthful, natural action may be expected.

In order to make this subject still clearer, let me illustrate by supposing a case.

Let us take the case of a child paralyzed from the irritation consequent upon the process of teething. Here the producing cause of the Paralysis is known, and, unfortunately, instances

of this kind are by no means uncommon. There is no disease, or poisoning of system in such a case ; no extravasation of blood into the brain substance, nor, so far as the closest investigation goes, is there any appreciable lesion of any part of the nervous system. And yet the child is paralyzed. The usual history of such a case is about this. A child ordinarily and otherwise healthy, but of a nervous temperament, begins cutting teeth. Various symptoms indicating an unusual excitement of the system may or may not be present, but suddenly, and perhaps without warning, it is noticed that one side or both are helpless. The child cannot walk as before. There may have been nothing to indicate the time of the occurrence of the misfortune, but, nevertheless, the fact exists and continues to exist in spite of the best efforts of the family doctor. By-and-bye, the child gets all its teeth. The system is no longer under the same or any irritating influence ; the general health is good and every function is carried on properly, but still the child can not walk. The Paralysis still continues. Why is it? The *cause* has here evidently subsided, but the *effect* continues, and under ordinary circumstances—we mean in the ordinary experience of physicians—will continue until partial improvement takes place in the process of growth and under the stimulus of exercise. In some cases, the leg—if it be a lower limb—grows to some extent, and when manhood arrives is but one or two inches shorter than its fellow, and correspondingly weaker and smaller.

When both lower limbs are affected by the paralysis, in such a case as this, the right leg nearly always gets the start of the left, and, by monopolizing the nutriment that should go to both, after a time gets to be quite strong ; but it is always, when left to nature alone, at the expense of its fellow, which remains dwindled and powerless.

Nature seems willing, but unable, without help, to fully effect recovery. Improvement takes place usually to some extent, but it is unsatisfactory and incomplete. Why is it? In answer to this, facts speak more plainly than conjectures or fine-spun theories. If care be taken from the outset, or soon after the occurrence of the disaster, to exercise and rub the leg, and thus

keep up artificially its nutrition, its growth will not be materially interfered with, and it will nearly or quite keep pace with its unaffected fellow of the other side, so that in time but little if any difference will be noticeable. *But never without such treatment.*

We have introduced this illustration to show that Paralysis may exist long after the cause that produced, it has ceased to act as such, and has entirely disappeared. Not only is this true of the Paralysis of infancy, but also of that occurring in mature life. For the paralyzed muscles of grown persons, after having remained helpless for years, without improvement, have been fully restored, by these same manipulations, under physicians who employ mechanical treatment alone; and not in an isolated instance, but in many cases. Our answer, therefore, to the query we propounded, resolves itself into this seeming paradox—*use* of muscles is necessary to the *ability* to use. In other words, the paralytic must exercise the affected muscles, or have them exercised, before he can hope to be rid of his Paralysis. A little further investigation of this matter will clear up the seeming paradox.

Action is a law of the system, and applies to the body as a whole, and to each individual part.

“Use, use is life; and he most truly lives who uses best.”

So true is this of the voluntary muscles, that their functions may be wholly lost by inaction alone.

The Indian Fakirs of South America regard it as a thing especially pleasing to their deity to hold their arms extended above their heads until they fall helpless at their side. Every one who has carried a broken arm in a sling for a number of weeks, knows how useless the arm grows from a lack of exercise.

Physiologists have proven, by repeated experiments, that muscles that have been unused for a number of weeks, actually change in their character, as before explained, being filled with *fat cells*, in place of muscle cells, which constitute a condition known as *fatty degeneration*. Whenever a fat cell takes the place of a muscle cell in a muscular fibre, it detracts just to that ex-

tent from the contractile or elastic power of the muscle—fat being as inelastic as tow. A knife cut into a muscle having undergone this fatty degeneration is greased by it. It has departed from the physiological type or standard of muscle, and taken on a lower order of growth; so that, under such circumstances, if there were no Paralysis in the case, strictly speaking, such a muscle would be called weak. The longer a muscle, or group of muscles, remains inactive, or lacking its due amount of exercise, the more numerous will become these fatty elements, and the more helpless the limb it is intended to operate.

We are now prepared to understand better than before, why a paralyzed limb, which has for a time been deprived of its accustomed and necessary exercise, may, from such circumstances—from its altered character—continue to be more or less helpless, even after its reconnection with the central source of power, or in other words, after every other impediment to motion has been removed.

For the means—the only means—at our command for restoring such degenerated muscles to their proper character, and fulfilling other requisites for the cure of Paralysis, we refer the reader to what we have to say on the subject of **OUR METHOD OF TREATMENT.**

OUR METHOD OF TREATMENT.

Having now discussed at sufficient length, as we think, on the Causes and the Nature of Paralysis, let us now turn our attention to the means by which we may repair the damage that has been done, and bring about a restoration of the lost function.

We have stated that every true case of Paralysis presents, during its history, three distinct stages or periods; namely, of Invasion, of Duration, and the stage of Reaction. One of the main requirements of these cases is to hasten the transition from one stage to the next, and to stimulate and render perfect the stage of reaction or improvement, during which, as we have seen, nature is herself busily at work in making repairs; but she unfortunately grows weary, and ceases to labor in the direction of health, while only partial improvement has been effected. Happily our art can afford such assistance as, in most cases, to induce her to renew her efforts and complete the restoration. During the first stage of the affection, the producing cause is still operating, and the main indication is, of course, to remove the cause, when it can be ascertained — and such a thing is possible. Powerful remedies, which have a specific action upon the nervous system, and especially the nervous centers, are required, and these we send to our patients, suiting always the particular remedy to the particular case in hand. They will be found efficient, and very different from the routine practice generally in vogue.

What has been said of the treatment in this stage, applies equally to the second period, during which the cause is still unremoved, and before nature has been able to summon her forces to effect the desired reaction. In both these stages rest and quiet are more efficacious than *much* exercise. There

should especially be as much freedom from business cares and anxieties as the circumstances of the case will allow. There should be a total abstinence from all causes of excitement of all kinds. The diet should be more bland, and the habits regular; but we shall speak of this again hereafter. This is the time for judicious, but active medication. But medicines wrongly administered, that fail to "touch the right spot," are worse than none. The third period, or that of reaction, during which there is some slow improvement, is the one in which we find the majority of our patients, and is the one in which our treatment shows its best results. It is the one in which this little book will be most serviceable, since the patient has now passed mainly out of the sphere of medicine, and must depend almost wholly upon mechanical and hygiene means. Medicines are still, in most cases, necessary, to a certain extent and in a certain way, for organs are still sluggish and functions disordered, and the system, in many cases, is depressed, requiring tonics; but, for the most part, such measures are necessary as will change the character of the muscular tissues, which from inactivity and disuse have degenerated and departed from their normal standard, and cannot act as formerly, until their normal physiological character is again restored. This medicine can never do. In the presence of this requisite, drugs are powerless for good. From what we have said under the head of Nature of Paralysis, this ought to be quite plain.

There is another requisite, in many cases, that medicines internally administered are powerless to fulfill: It is to inspire or bring about a realization of power, which the patient really, but *unconsciously*, possesses. It may seem strange, but it is no less a fact, that paralytics often possess more real power than they are aware of. Indeed, we have seen cases in which there was such speedy resumption of power under mechanical treatment alone—so much Paralysis before, and so little after a few days or weeks of well-directed and kindly rendered aid—that we could not escape the conviction that all that was needed was the knowledge of *how* to work the limb, rather than a lack of ability to do so.

Such cases are quite like that of a steam-engine which may

have every requisite of motion, steam up and valves open, but which stands still till the *first* revolution has been imparted to it from without; this first revolution of the wheel affording the conditions for the next to follow, and so on, each turn of the wheel making the next one possible. So in re-establishing the function of muscles once lost, it is in passing these *dead centers* that the chief obstacle oftentimes lies. By following out the line of treatment we indicate this requisite is fully met.

The will is called forth and directed into the channels from which it has been alienated.

Just here let me say a word to the friends of those who are attempting our mode of cure.

Every means should be used to encourage and aid them in their efforts. No word of discouragement or act of levity should be indulged in. The improvement, in any event, must be slow, and, to the patient, tedious, and his hopes and his energies will oftentimes falter unless the timely and wise counsel of his friends inspires new hope and enables him to persevere.

We do not mean that the patient is to be flattered or deluded, or made to feel that he is improving when he is not. By no means. But the mind has so great an influence over us all; and, especially, when the body is weak and diseased is this influence felt, and much can be done in the way of encouragement by kindly and hopeful words. Encourage the patient to make the most of every little gain, however trifling, and under any event let the whole household despond but him or her to whom hope is most necessary.

In this last stage, then, there are three principle requisites which, as we contend, are beyond the province of medicines, and yet can be met by the means which we shall now proceed to explain.

These requisites are, 1st, Restoring and equalizing the circulation; 2d, Improving and perfecting the nutrition of the affected muscles; and 3d, Teaching the palsied limbs to understand and obey the mandates of the will.

All these requisites are largely fulfilled by that system of active and passive exercise known as the

SWEDISH MOVEMENT CURE.

The Movement Cure, as a system of medical treatment, consists in a multitude of exercises, of such a nature as to be attainable by the invalid, no matter how helpless, and also of such a nature as to give him the greatest possible benefit to be obtained from exercise, with the least possible expenditure of vital force. The paralytic is bankrupt in the power of motion, and the Movement Cure, appreciating this, gives him an unlimited loan in the way of attendants and appliances, whereby he *moves* without exhausting his limited resources, but, as it were, on borrowed capital. To drop the metaphor, the paralytic, whose limbs are incapable of voluntary motion, is taken in hand by one who is strong and well, and the powerless muscles are contracted and relaxed, and the limbs flexed and extended just as if they were unaffected. All the natural movements of the limbs are imitated in this manner while the patient lies quietly on an easy couch.

The effect is nearly the same as that which follows voluntary exercise. Additional supplies of blood are called into the paralyzed tracts, and the nutritive processes, whereby muscles are always kept in health, are stimulated and perfected.

The value of exercise in Paralysis has never been disputed by any school of medicine. On the contrary it is always recommended. The Movement Cure, and it alone, provides the means whereby he can get it, and in such quantity and in such a way as to do him the most good. Exercise, when taken by one who is partially paralyzed, is *always monopolized by the unaffected muscles*—the helpless muscles, which are the ones in need of it, getting none at all, or next to none, by reason of their helplessness. A paralytic affected with Paralysis of one side, walks with the *well side*, when he walks at all, while the sick side simply *rides* or drags along, getting no exercise whatever.

But by the Movement Treatment, we exercise directly the parts that are weak, or helpless, giving them as much exercise as they require. *In a word, the exercise is localized, being directed and confined to the very muscles and parts that are suffering for the want of it.*

We avoid all exhaustion and fatigue. We rub the paralyzed parts, roll the muscular fibers together, and give them rapid *vibratory motions*, which stimulate the sluggish circulation, and bring increased supplies of blood into the parts to be used in the process of upbuilding. In this way we keep up or restore the natural nutrition of the affected parts, which was rendered imperfect by the Paralysis.

This is Nature's own process. In the Movement Cure, we only imitate her; we follow her laws and act only in accordance with them. We make muscle and increase its power, just as she does it herself. As one has truthfully said, "The Movement Cure is the acme of medical art, it is the *ultima ratio* of treatment.

But we do not seek to make muscle simply. This is, indeed, only of minor importance. We want not only muscle, but the power of moving muscle. The lack of this is indeed the essence of the affection. The will has been alienated from its servants the muscles, and peaceful and harmonious relations must be re-established. This we do in the Movement Treatment by such processes—simple at first, but more complicated after a time—as tend to evoke the will, and stimulate the patient to participate in the various movements which the mind sees to be in progress.

A palsied man has, as it were, forgotten the art of using his limbs, and has to learn it afresh. He is an adult in those parts where his power lies; a baby in the paralyzed tracts. In such a case we undertake to teach him, first how to creep, and then how to walk—commencing with passive movements. By fumbling, rubbing, patting, and nursing, we stimulate and awaken action in the large, helpless infant limbs; and afterward we endeavor, by degrees, to develop some power of resistance, and then by superior force, slowly overcome it; in all our processes steadily keeping in view the desired end of educating the limb into self-reliance and self-control.

It may be well here to give some account of the origin and history of this new system.

About the beginning of the present century, a Swedish professor by the name of Henry Ling became paralyzed, and after

passing through an experience quite like that of nearly all paralytics—that is, trying all the prevailing modes of treatment and failing in all—he finally recovered his health completely by attempting to *re-learn*, as it were, the art of fencing, in which he had been quite an adept before his misfortune. Under the stimulus of exercise his helpless arm gradually became stronger and more useful. He again became proficient as a swordsman, and was no longer an invalid.

With good reason, he traced effect to cause; and having failed to receive benefit from methods in vogue, he very naturally gave the credit of his recovery to the system of exercise which he had so diligently pursued. The success attending his effort to cure himself stimulated his ambition to help others, and he was happily rewarded in all such efforts by seeing his friends benefited as well as himself. Being a graduate of medicine, he was impelled to use the same means of cure in other diseases, not of a paralytic character, but accompanied by a greater or less degree of weakness and consequent helplessness. He found that other disabilities also yielded to the magical influence of exercise; and so he extended his investigations, his practice and his discoveries, until, after years of toil and many adversities, he finally succeeded in founding the system of medical treatment known as the *Swedish Movement Cure*. After receiving various rebuffs in his efforts to extend the benefits of the new system, the first institution for the treatment of disease by this method was founded at Stockholm, Sweden. And now, seventy years later, there are not less than thirty similar institutions in Germany and other parts of Europe.

In this country, the system of Swedish Movements was introduced some twenty years ago; and, wherever intelligently employed, its use has been attended by the most happy results.

Since its introduction into this country, the system has been greatly improved and the range of its application widened. As its name implies, it is a complete system of bodily movements, so arranged as to bring every muscle of the body in action, if desirable, and they are of such a character that no degree of weakness or helplessness is a barrier to their employment. Where a part, as an arm, for example, is totally destitute of the

power of voluntary motion, the limb is still exercised *artificially*, by what are termed *passive movements*. In such cases, an attendant, who is strong and skillful (or at least careful), takes hold of the limb, and gently, but firmly, puts it through such movements as it is naturally capable of, flexion, extension, rotation, etc., the patient meanwhile exerting his will to aid in the movement, though his effort is apparently attended by no particle of success. Already this system comprises upward of two thousand different movements, and many complex and costly pieces of apparatus and machinery have been invented to facilitate the operations.

Indeed, the Movement Cure is a complete system of medicine, and, used alone in the treatment of chronic diseases, is capable of more good than all the drugs that were ever compounded used without it. There is such a thing, however, as a wholesome union of the two. Of this new system Dr. John Garth Wilkinson, a celebrated physician of London, says :

"This art consists in applying external motions, passive and active exercise, to the body : and in rendering these so special as to operate on the various inward organs, or on parts of them specifically. Posture, friction, percussion, motion, are all made use of; and already as many as two thousand different movements have been devised for the purpose of operating upon the failing powers within. There are languages of nudges, to remind brain, liver, spleen, and all, of their neglected duties. The effects produced approve the plan, and stamp it as an art and science. It is admonition, contact, exercise, pursued into details, whereby disease is literally *handled*.

"Perhaps there is no malady but tends in some way to alter the bearing, posture or general *status* of the body. In acute cases this is plain. We groan, writhe, wriggle, wince, shake, crawl, creep, dance, and so forth, with our agonies and discomforts, showing that disease is a complete posture master and very good sergeant, whose drill is for the purpose of relief and cure. Very small areas of disease have corresponding to them large movements in the system; and if we understood the movements, we could by reaction play upon the parts and particles of the organs. If a special wince or twist arises primarily out of some one place, then by comprehending the twist, and producing it artificially, we get at that place exactly, were it no bigger than a pin's head. Here is precise gunnery—hitting disease with a fine arrow. Again, there are instinctive movements of the hands towards afflicted parts of our frames. We rub ourselves with organic pity, like dumb animals, where the deep flesh is ill. This is nature working for us, and showing us the beginning of a manual science of soothing, trac-

tion, nudging, and so forth, the detail of which is the *Movement Cure*. We have been greatly struck with the common sense which dictated the Lingian art, and with the excellent, unexpected results which flow from such simple means. Exercise is often demanded, not so much for the whole frame, as for particular organs. For instance, a sluggish liver may refuse to resume its functions under the general stimulus of a walk. The kinesiopathist exercises the liver itself: by his jerks and suggestive poking, he commands it to make bile; and sure enough the liver does make it. By a like preciseness of application he cures sluggish bowels. He exerts the physical force of cure with the gentleness of art and science. He strengthens special muscles by adequate ingenious exercises. He cures hot heads and cold feet, by briskly rotating the feet upon the ankles, steadying the limb by grasping its lower part. And so forth. This is evidently the *ultima ratio* of treatment in chronic diseases.

"In paralytic cases, where the nervous derangement is only functional, kinesiopathy is found to be an effective mode of cure. Its doctrine here, as we read it, commends itself to our acceptance. Where a power has been lost, but its potency is left, it is as though the power had never been developed. A palsied man of this kind has forgotten the art of the use of his limbs, and has to learn it afresh. He is an adult in those parts where his power lies; a baby in the paralyzed tracts. The medical gymnast undertakes to teach the latter, first how to creep, and then how to go. He commences by passive movements—nursing, fumbling, and so stimulating, the helpless, large infant limb; and by degrees a little reaction against him is perceived. He then makes more extensive movements, stretching the muscles and producing further reaction; and finally he commands the resistance of the patient, and then by his superior force slowly overcomes it; in all these processes steadily keeping in view the end, of educating the limb into self-reliance, or as we term it, sense of power. Many an old paralytic is cured by these apparently trivial means; the mind and will, which had alienated themselves, are coaxed back into his arms and legs."

At our Institution, in Cincinnati, we have a large room fitted up with couches and apparatus of various kinds, where our patients assemble daily, and spend from one to two hours in being manipulated by skillful attendants, and, when able, in the use of the apparatus. None of the operations are painful or unpleasant, but, on the contrary, are enjoyed by the patient—not alone for the hope they inspire, but from the pleasant sensations excited by the movements themselves.

For the benefit of those who are taking our Home Treatment, we shall attempt to give a few samples of these movements, of such a character that any one can understand and use them;

and, to make them still more easy to be comprehended, we shall illustrate the text so that none need go astray; we shall also give some illustrations of simple apparatus.

Among the appliances for improving the nutrition of the paralyzed limbs, which this Movement Cure provides, there is an instrument called the "Vibrator," propelled by a foot treadle or by steam power, which gives to the hands and feet, when undergoing the operation, from eight hundred to a thousand, or even fifteen hundred vibratory motions per minute, and has the effect to send the blood tingling into the remotest extremity of the limb, carrying warmth and vigor along with it. Every blood vessel of the limb, even to the minutest capillaries, takes on increased action under this operation, and the interchange between the tissues and the blood, by which nutrition is effected, goes on with greatly increased rapidity. Limbs that are greatly shrunk (atrophied) and habitually cold, are warmed immediately by this process, and commence a steady and rapid growth from its effects.

There are other processes and operations which enter into the treatment, some of which require the aid of mechanical apparatus—and others which are performed by skillful and patient hands—which can be easily and cheaply constructed, and yet be of great value. It should be understood that the movements we give here are samples only, and not intended by any means to exhaust the subject. Any ingenious person who catches the idea of the system, can from these devise others, perhaps, equally good. One thing must be borne in mind always in using these, or any other exercises, never use a muscle beyond the point of fatigue. As soon as tired, no matter how much or how little has been accomplished, stop and rest. This is all-important, and must not be forgotten.

GENERAL INSTRUCTIONS FOR EXERCISING.

The paralytic should understand that these "Movements" or Exercises are different, or at least *should* be different, from the ordinary exercise in which he indulges, or of which he is capable. General exercise is indefinitely distributed, and is too largely participated in by the well muscles.

Those we are about to describe are to be *localized*—that is, confined mainly to the muscles which are rendered more or less helpless by the Paralysis.

To render them as efficient as possible, and as direct in their effect, the entire body, but the part engaged, should be at rest. That is to say, if the arm is being exercised, the whole body, as far as possible, except the arm, should be quiescent.

When those movements are being taken, which are wholly passive in their nature, such as rubbings, frictions, etc., the patient should lie or recline upon the edge of the bed, or upon a lounge, or if preferred, may sit in an easy-chair. In taking more active movements, the same precaution should be taken to engage only a few muscles at a time, so as to concentrate the effect of the movement upon the acting part.

Between each movement and the next there should be an interval of rest, whether the part is tired or not. It should be remembered all the time that we claim for these movements, when taken as we direct, not only the general healthful effect appertaining to all exercise, but a *special* and *medicinal* effect. To insure this special effect, every precaution should be taken to do every one just right. The intervals of rest which intervene, are just as necessary as the movements themselves. If this is omitted, the weak and easily exhausted muscles are soon overtaxed, and harm is done instead of good. Just as one should always rise from the table with some appetite remaining, so no one should surfeit himself with exercise. *Stop always*

before you have exercised all you are able to. The best time for taking exercise is in the middle of the forenoon, though the strength and the feelings of each one will perhaps be a sufficient guide. But a certain and regular hour should be set apart, each day, for this purpose. Among the apparatus with which each one should provide himself, who proposes to make a trial of Home Treatment, is a pair of wooden dumb-bells, which any turner can make for him at a trifling expense. These bells should be from nine to eleven inches long, and the balls on either end should be in circumference from eight to eleven inches, according to the weight desired. The bells should be turned out of solid black walnut or maple. The space for the hand between the bells should be about four inches. Such bells as these will be light enough for nearly all, and if used vigorously, will speedily grow heavy enough for any. A variety of exercises may be gone through with by their aid, which will so readily occur to all that a detailed description of them may be omitted.

Sand bags are also excellent to be handled and tossed, or kicked with the feet. They should be made of canvas, of various sizes and weights, from one to three or four pounds. With these and the other cheap appliances, which will be described hereafter, the paralytic can transform his bed-room or sitting-room into a very profitable gymnasium, if not into a modern Movement Room. The cords seen in some of the illustrations, run through common iron pulleys, with gimlet pointed stems, which are screwed into the ceiling or wall. They can be put up anywhere without marring the walls, and taken down at pleasure. For weights, sand bags can be used, or any thing which may happen to be at hand of the desired weight. When the lower limbs are both paralyzed so as to prevent locomotion, a very valuable aid will be found in the Go-cart (Fig. 1.), with which, and a little practice, the patient will speedily learn to use his limbs and get from room to room.

The construction of the apparatus is as follows: The top is a padded wooden ring, supported at a convenient height on a broad, square base, and carrying movable crutches. The base rests on wheels, and the crutches can be raised or lowered as required.

One which we recently had constructed for a patient, who is a medium-sized man, has the following dimensions: Base, 31 by 34 inches; diameter of top, 18 inches; opening in top (door), 13 inches; height from floor, without castors, 40 inches.

The patient, being placed within this apparatus, can sustain himself by the arms, and bear as much or as little weight upon the feet as he may be able; and by daily efforts to push it forward and around, considerable facility will be speedily acquired, after which ordinary crutches or canes may be substituted.

PASSIVE MOVEMENTS.

These exercises are so called because there is no active participation in them on the part of the patient.

They are given to the patient rather than taken, and require an assistant, who should be intelligent, careful, willing and strong. The range of their application is unlimited, but they are especially applicable to complete Paralysis, where active exercise is impossible.

In many cases the paralyzed muscles will be found so sore that rubbing and working them will be attended with considerable pain and soreness at first, but they should be used nevertheless. This soreness is a part of the affection, and is usually due to perverted nutrition, and it will pass away gradually under the treatment.

The clothing of the patient should leave the body as free from restraint as possible; a loose dress or wrapper being worn, which will allow of movement of the limbs in any and all directions.

Where the muscles of a limb are contracted, so as to prevent proper and full action of the joints, such a limb should be gently, but firmly, drawn out every day, or several times a day, until the contraction is overcome, as in many cases it may be by these means.

ARM WRINGING.

In this exercise the assistant grasps the arm firmly, near the shoulder, with both hands, one hand being a little higher up on the arm—enough so for them to pass partly by each other.

The hands are then worked around the arm with a motion similar to that which a washerwoman uses in wringing clothes. Commencing near the shoulder, the hands of the operator should pass down the arm, still continuing the wringing movement, until the wrist is reached, when it should be recommenced and repeated half a dozen times. The hands work crosswise of the muscles, not lengthwise. The sensation accompanying the movement to the patient is one of warmth and comfort, which is very grateful. To the operator, there is more *warmth* than comfort.

ARM ROLLING.

The action and effect of this movement are similar to the above. Instead of grasping and wringing the arm, however, the attendant places one hand, with extended fingers, on each side of the arm, and presses firmly; then, by a quick and sort of see-saw motion, the hands passing in opposite directions, a vibratory motion is set up in the muscular tissue. The hands should not glide across the arm so as to produce friction, but should press so firmly against the sides of the arm as to carry the muscles along with the hand, thus rubbing fiber against fiber.*

ARM TWISTING.

The hand is grasped by the operator, and the arm extended at full length and straight. Then the arm is slowly turned or twisted upon its axis, backward and forward—exposing to view, first the palm, and then the back of the hand.

The movement should be repeated from six to twelve times. If the patient is capable of making some resistance, however slight, it should be used in this movement. While the operator is turning the arm in one direction, he should try to turn it in the other. Then the attendant should yield to this effort of his patient, and allow him to turn it back to its former position.

ARM ROTATION.

The attendant grasps the hand of the patient with one hand, and his elbow with the other, and revolves the arm about the

* In wringing, rolling, and all the rubbing of the muscles, the hands should pass *across* the muscles, never lengthwise.

shoulder joint as a fixed centre. The arm of the patient should be partially bent, and made to describe as large a circle as can be done without pain. In this movement, as in the last, slight resistance should be offered, if the arm is capable of it, and the operator should encourage the effort to make it; but it should be but slight, and the movement should cease on the first signs of weariness.

PASSIVE EXERCISES FOR THE LOWER EXTREMITIES.

LEG ROLLING.

This movement is very similar to arm rolling, and consists in rubbing the muscles of the leg together, by placing a hand on each side of the limb and quickly agitating it. As in arm rolling, the hands must not glide over the surface, but carry the muscle along with the hand.

THIGH ROTATION.

In this movement, the operator takes hold of the ankle with one hand, while the other presses the knee, which should be drawn up toward the body—the position being similar to that seen in Figure 3, only the knee should be raised higher. The operator should then make the knee describe a circle a half dozen times in one direction, and then as many times in the other.

When both legs are paralyzed, they may be rotated together as in Figure 2, though it will usually be found better to exercise one at a time. In giving this movement, the assistant should press the thigh well down against the abdomen of the patient, as it comes round, and make the knee describe as large a circle as possible.

LEG EXTENSION.

The operator grasps the leg, the same as in the preceding movement, and as seen in the illustration (Fig. 3). The leg is then pushed, or, if the patient has sufficient control over it, *drawn up* till it presses the body, and then it is thrust out against the

resisting hand of the operator. This should be repeated from six to twelve times, as the strength of the patient will admit. When this movement is thus taken, it tends to strengthen the *extensor* muscles of the leg—the muscles that carry the limb forward in walking.

By reversing the movement, and drawing the leg up toward the body, against the resistance of the assistant, the *flexor* muscles are exercised.

LEG TWISTING.

The heel and toes of the patient are grasped by the operator, who faces the patient, and the leg slightly raised from the bed or couch, and the leg twisted gently and slowly back and forth a number of times, as seen in the figure (Fig. 4). In this, as in the two preceding movements, the patient should endeavor to make some slight resistance to the efforts of the operator. The latter's expenditure of force should be so adjusted to the powers of the former, that his efforts, however feeble, may be recognized and appreciated.

FOOT ROTATION.

This is a very important movement for those whose toes drop or drag from paralysis of the muscles that sustain and control the action of the foot. The foot of the patient is placed in the lap of the operator—who sits near enough for the purpose—the ankle resting across his knee. One hand of the latter grasps the ankle on its upper side, while the other hand grasps the toes, and turns them round and round, describing a circle. The circle should be described in both directions, and the movement continued for several minutes. This will be found a very efficient mode of warming cold feet, as well as strengthening the ankle. Before ending the movement, the toes should be pressed upward toward the body several times, and then extended as far as they will go.

TAPPING ON THE BACK.

This movement we regard as a very important one. When correctly given, it acts derivatively to the spinal cord and

brain, relieving the nerve centers of congestion; and, moreover, it has a powerful effect in stimulating the generation and equalization of the nerve force. It is a movement very generally considered grateful and soothing.

The patient lies on his stomach, extended at full length, with the head depressed. The hands of the operator then give a series of rapid but gentle taps along the back and limbs, with the edge of the hand, using the finger rather than the palmer portion of the hand. The blows should be light, not heavy—taps rather than blows—and should be commenced at the neck and descend to the end of the spine. It should be repeated a number of times. The back should then be clapped or patted over its whole length, the operator using the palm of the hand; and, finally, the back should be thoroughly rubbed cross-wise of the spinal column. Some skill will be needed to render this movement effective, but this will soon be acquired by patient trials. (See Fig. 5.)

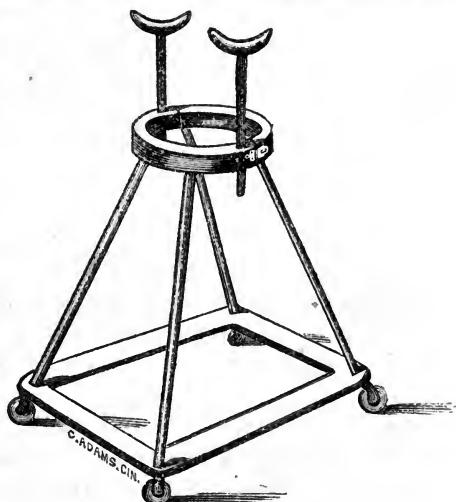


Fig. 1. See page 28.

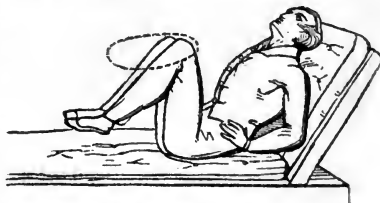


Fig. 2. See page 31.

KNEADING THE BOWELS.

This is a capital movement for constipation. The head and shoulders of the patient should be raised well on the pillows. The knees are then to be drawn up so as to relax the abdom-

inal covering. The two fists of the assistant, strongly clenched, are pressed into the abdomen, after the manner of a housewife kneading dough, and gradually worked around from right to left. The motion should be kept up for several minutes. It will be found to promote the fecal discharges, by stimulating the secretions, and also by strengthening the expulsive muscles.

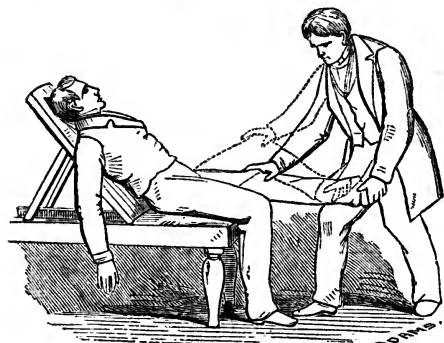


Fig. 3. See page 31.

TAPPING AND CLAPPING OVER THE LIVER.

The body lying at full length on the left side, exposes the region of the liver, by raising the right arm and extending it over the head. The entire right side, from a little below the armpit to a little below the ribs, and from the median line of the body in front to the spine behind, should be gently tapped and

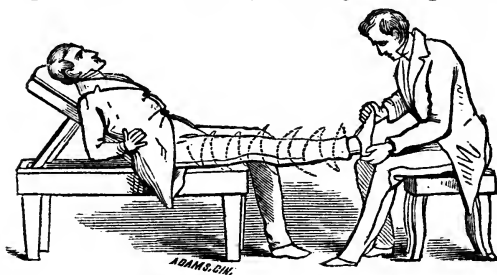


Fig. 4. See page 31.

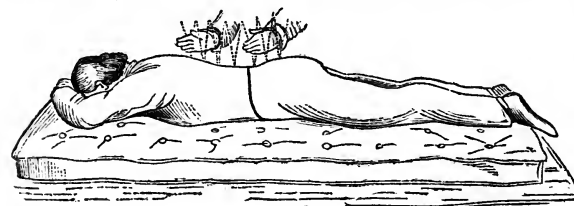


Fig. 5. See page 33.

clapped, according to directions previously given for the same movement over the back. This is an excellent remedy for torpid liver.

In all these passive movements, their efficiency and value will

depend largely upon the operator. If he be awkward and careless, the patient will receive little good, and be soon wearied, if not disgusted with them; and to any one who attempts them, a little time will be required to become expert. The paralytic should be patient, and not discouraged if the first trials result in failures. Satisfaction will follow perseverance.

ACTIVE MOVEMENTS.

These movements, or exercises, are intended to call out the active energies of the muscles engaged, and to develop the powers of volition. They are, of course, only adapted to those who have some little power of voluntary movement. Those here given are intended only as samples. Each patient can extend the list or vary them almost indefinitely. The object of them all is to bring the muscles into use, and not only the muscles of a limb generally, but each group of muscles—the flexors, the extensors, the abductors, the adductors, etc.

Some of these groups will usually be found more helpless than others, and these should be exercised most. For instance, if the flexors of the leg are stronger than the extensors, so that the leg can be drawn up toward the body, but cannot be extended, the more reason why the power of extension should be cultivated. In taking these active movements, the degree of helplessness should be considered. But if there be a little germ of motion in a single finger, that germ should be employed, as in this way, and in this way only, can it be expected to increase and develop.

One will be astonished at the increase of power that will come from these means. It will oftentimes come slowly and almost imperceptibly, but will aggregate largely when one month is compared with another.

In paraplegia, where the entire body is more or less affected, and the subject bedridden, a little iron pulley may be inserted, by means of a screw attached, into the ceiling over the bed, and a cord, with a ring or handle at the end, passed through and dropped down within arm's reach; while the other end of the cord, with a weight attached, is carried over the foot of the

bed by means of a second pulley in the ceiling. (See Fig. 6.) With this the patient can amuse himself profitably, by pulling

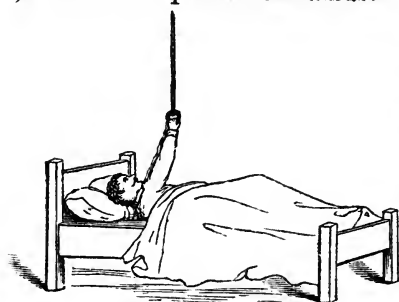


Fig. 6.

up the weight, which should be very light at first, and increased as additional power is acquired. Such exercises as this, however, only calls into use a few of the muscles of the arm — principally the flexors—and others equally need attention.

To meet their necessities, other pulleys may be inserted into opposite sides of the room, on a level with the bed, which should be drawn into the center of the room, temporarily. Cords, with weights attached, may then be carried to the extended arms of the patient, who raises the weights, either one at a time or both together, by

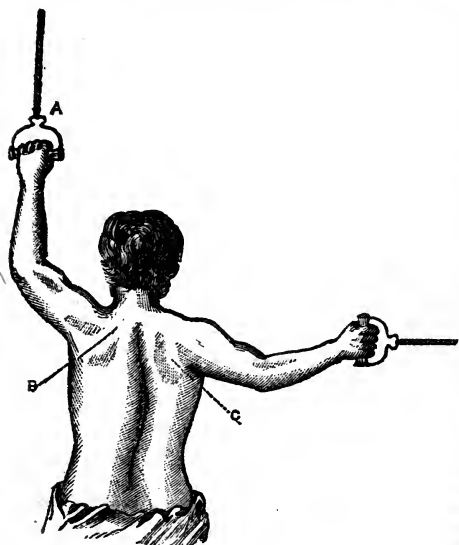


Fig. 7.

drawing the arms to the sides of the body. For the legs, the same cords may be fastened to the ankles, and the limbs alternately separated and approximated.

In Figure 7, an attempt has been made to illustrate the effect of these exercises with the weights and pulleys. The effect is not confined altogether to the arms, as will be seen by the deviation produced in the spinal column. This shows

that when the arms are strongly adducted, the spinal muscles are brought into use also, which strengthens the back and

loins; and, besides, a strong derivative effect is produced upon the spinal cord itself.

If the patient is able to sit up, a very good exercise for the limbs is that illustrated in figure 8.

A board four inches long and a foot wide is put on small wheels—the round ribbon-blocks of the stores can be made to answer every purpose, or a child's toy-wagon may be used—and a strap nailed on top to slip the toes into; or, still better, an old slipper or shoe may be screwed to the board. The board is then to be weighted with sand bags, until it is so heavy as just to be able to be moved.



Fig. 8.

When this is pushed away from the body, the *extensor muscles* are called into action; when it is drawn back again, the *flexors*. If the shoe be turned around crosswise of the board, and a sidewise motion be used, so as to separate the legs, and then approximate them, two other important groups of muscles are used—the *abductors* and the *adductors*. Thus all the important muscles of the lower limbs may be actively and profitably exercised.

BACK BENDING.

There is oftentimes great weakness and soreness felt in the back, which proceeds solely from muscular debility. A good exercise for this is that illustrated in Figure 9.

The patient, sitting in a chair, may slowly bend the body forward and back; or, still better, make the movement more forcible by pulling on elastic bands or cords, or pulleys and cords, to which weights are attached.



Fig. 9.

FOOT TAPPING.

For the numbness of the feet, which is oftentimes very annoying, notwithstanding the fact that sensation is elsewhere but little affected, as well as for the habitual coldness of feet to which paralytics are so subject, great relief will be experienced by rapping the soles of the feet with a stick. (Fig. 10.) This action produces a better circulation in the foot, and also awakens a better feeling in the local nerves.



Fig. 10.

KNOCKING THE SACRUM.

In this movement, one hand is extended, and rested against some firm object, as the wall, so as to brace and steady the body by its contact. The trunk leans forward, the body being in a standing position; the free arm and hand, strongly clenched, is used to deal a number of smart blows (twenty or thirty) upon the lower portion of the spine and sacrum. (Fig. 11.) This movement makes a vibratory impression upon the sacral bone, its contained nerves—the lower portion of the spinal cord and its branches. The effect is also communicated to the pelvic organs, as the rectum, uterus, bladder, etc., both directly and as a result of the excitement produced in the part of the spinal cord supplying the affected region with nerves. It will be found highly useful as an accompanying movement to the kneading of the bowels, in cases of constipation.



Fig. 11.

There are other important things to be observed by those exercising in this way, which we put in the form of

MAXIMS TO BE REMEMBERED.

1. Have a definite understanding of what you want to do.
2. Set about it slowly and deliberately.

3. Perform each act as well as as you possibly can.
4. Rest frequently while exercising.
5. Stop as soon as you feel fatigued.
6. Try each day to do a little more than you could do yesterday.
7. Don't hesitate to try to-day to do what you failed to do yesterday.
8. Use the parts *most* that you can use the *least*.

THE DIET FOR PARALYTICS.

The paralytic who would do everything to insure and expedite his recovery, cannot be indifferent to the quantity and quality of his food. We regard it as of very great importance that the diet should be wholesome, unirritating, and adequate to all the wants of the system. With the paralytic, his necessities are of such a character that they can be met in no small degree by his daily food. His daily bread may be made medicinal as well as nutritive.

Physiologists and chemists have given a great amount of study to this matter, and have shown that we need to vary our food according to the varied conditions of the body. Different avocations, habits, and modes of life, drain the powers of the system through different channels. The old adage may not be strictly true, that "one man's meat is another man's poison," but it is absolutely true that a man who labors with his brain requires, for his proper sustenance, a very different diet from a common laborer. Food that will nourish the one, will fail to nourish the other. So with disease: different affections exhaust different elements of which the body is composed, and require different treatment—medicinal agents—to supply that which is lacking. Consumptives, for example, require carbonaceous foods, because the carbon of the system is being consumed faster than it is supplied by an ordinary diet. Indeed, so necessary is it to regulate the diet according to the different conditions of the body, in health and disease, that there are physicians who claim to be able to cure chronic diseases of all kinds by diet alone.

Of especial importance is this matter to paralytics. When the nervous system is unduly taxed by mental activity, or when disease makes an inroad upon this portion of the organism, the *phosphates* are rapidly exhausted, and foods, rich in phosphorus, should be eaten to make good this loss. In muscular activity, the *nitrates* are mostly drawn upon, and nitrogenous foods, such as lean meats, should be eaten. But the thinker and the paralytic need phosphorus, and should get it in the most eligible shape for appropriation, by increasing the consumption of phosphatic foods. These foods are, for the most part, oysters, and all shell fish, and indeed, fish generally; unbolted flour and grains of all kinds, eaten shell and all. When wheat and corn are ground and bolted, the phosphates, which reside principally in the shell or hull, are lost, and little of the grain is left but the starch, which is fattening, but not strengthening.

All food for the nerves is bolted out, to be fed to the pigs, while the fattening portion is retained and eaten. So of milk—the strength of the article is not in the butter, but in the *buttermilk*.

At least one meal a day should be made of unbolted flour, cracked wheat, oatmeal, or rye.

These should be thoroughly broken, but not ground too fine, and should be well cooked. When eaten with milk, or milk and sugar, they are not only very wholesome, but very palatable.

Sweetmeats, pastry, and things of that kind, should be scrupulously avoided. They tax the digestive organs more than wholesome food, and yield no adequate return in assimilable aliment.

As a general rule, paralytics have a large appetite, which is out of all proportion to the requirements of the system. We have seen cases where the alimentary function was greatly perverted, and a ravenous appetite resulted. When this is the case, if the desire for food is yielded to, grossness and sluggishness is the inevitable result.

The body is weighed down by a load of fat, which is of no utility, but only a burden.

Another reason we have for advocating coarse foods, especially for supper, is the fact that most paralytics suffer much inconvenience from constipated bowels, which such a diet as this tends strongly to relieve. Still further relief, under such circumstances, may be found in large quantities of water drank just before going to bed at night, and repeated the first thing in the morning. If other measures than these are necessary to keep the alimentary canal open, we advise the daily use of the syringe and tepid water; or, if this proves insufficient, an ounce or two of molasses or starch may be added to the water before using, to increase its consistency. Kneading the bowels, as a housewife kneads her bread before baking, and rubbing them round and round from right to left, will often have a very satisfactory effect.

While upon this subject of diet, let me say a word on the use of

STIMULANTS.

It seems strange that even a word is necessary on this point, since it is so well known that stimulants of all kinds, and especially alcoholic stimulants, produce always more or less cerebral congestion—the very thing which paralytics should avoid as they would poison. And yet we are often asked the question by such persons, if the moderate use of alcoholic drinks are injurious to them? We answer now and always, they are unqualifiedly bad, and should not be used *at all*, under any circumstances whatever, when there is the slightest degree of Paralysis. The so-called “tonic effect,” by which is indicated better appetite, better digestion, etc., can be had in other and better ways, without the dangers attending the use of spirituous liquors. They should never be used except as a medicine, under the direction of a competent and conscientious physician, who discriminates wisely in the cases where they are admissible. In saying this, we wish it to be understood that we are by no means fanatical. We judge the matter from a purely scientific and practical standpoint, divested wholly from teetotal bigotry. They have uses, and are among our most potent medicinal agents, but we strongly urge paralytics not to touch them as a beverage, for they are treacherous and invariably dangerous.

With regard to tea and coffee, we can only say, they should be used with great moderation, if at all, and the paralytic is better off without either of them. Of the two, we regard tea as the most pernicious. It is astringent to the bowels, while coffee is laxative. Tea is, moreover, a much greater stimulant to the nervous system than coffee.

As to tobacco, we have about the same thing to say. Smoking is much more injurious than chewing, but the latter saps the vitality of the user, and the paralytic needs all his strength. He has no surplus to spit away.

Too much importance cannot be attached to this matter of diet. We have only hinted at some of the more prominent features of the subject. We advise all our patients who wish to understand the details of correct living, to purchase and study the two works, recently published, entitled "The Philosophy of Eating," and "How Not to be Sick," both by Dr. Bellows, of Boston.

BATHING.

This subject is one of great importance, and yet, as a general thing, it is fearfully neglected. Every paralytic should, if practicable, take a daily bath. The system is rendered morbidly sluggish by reason of the Paralysis, and hence does not throw off its impurities as it should do, and a valuable aid to the depurative process may be found in the daily bath. The necessity for the bath, may be found in the fact that the surface of the body is studded by millions of imperceptible, but active glands and tubes, which open into the pores of the skin, and from these pores from *two to five pounds of waste matter finds exit daily*. If the surface of the skin is clogged by the accumulations—and, in the nature of things it must be, unless frequently cleansed—these effete, and, therefore, injurious matters, are retained, perforce, within the system, and give rise to much bad feeling. Besides its purifying character, the daily bath will be found most enjoyable and profitable on account of its stimulating and equalizing property. Its effect, when rightly used, is immediately and permanently exhilarating.

Perhaps the best bath for paralytics, generally speaking, is the sponge bath. It may be used with plain water, or salt-water, or spirits and water, according to the requirements of the case. Whichever is used, the temperature of the bath should be regulated by the reactive powers of the system, ranging from 75° to 98° Fahrenheit. When there is much animal vigor, the body being well warmed, the former temperature will be none too cold; whereas, should the bodily powers be greatly enfeebled, and the surface easily chilled, the bath should be warmer, and may be necessarily as high as 95° or 98°. In taking the sponge bath, the room should be quite warm, and every precaution should be taken to avoid drafts and exposure to cold. The whole body may be sponged over at once, or only a portion at a time, the part sponged being thoroughly dried and rubbed before another part is exposed. In all cases, when it is possible, the bath should be administered by an attendant, without regard to the helplessness or helpfulness of the patient. Reaction will be much more thorough, and the person much more refreshed by this means. No one can rub himself as another can, and the item of thorough friction of the surface, after a bath, is a large item in its utility. The greater the prostration and feebleness of the invalid, the greater the necessity for an attendant. After the body has been well dried, the several parts should be rubbed briskly, and spatted with the bare, open hands until the entire surface is in a glow.

In cases where the circulation is languid—as shown by the coldness of the extremities—an excellent bath is that which is known, in water-cure parlance, as a “whisky” or “alcohol” *friction*. A couple of ounces of crude spirits are added to a half pint of warm water, together with a handful of salt (a small handful), and the body, or at least the paralyzed portion of it, is sponged with this after the manner of the sponge bath described above.

We must counsel our patients against the use of the warm *full bath*, steam baths, vapors, and packs, and, indeed, all baths whose tendency is to weaken the system. We have known several persons to be greatly injured by the “pack.” It is too exhaustive a bath, as a general thing, for one who is paralyzed.

No bath or other means should be used that takes away any portion of vitality, or which is followed by a sense of weakness. On the contrary, every means should have one sole aim, to add to—not take from—the strength and vigor of the system.

The *shower bath* is also a bad bath for a paralytic, and should never be used. It produces too great a shock, and more or less exhaustion almost invariably follows its use. Indeed, our opinion is fixed, that there is no bath quite equal to the **WARM ELECTRIC BATH**, of which we have spoken elsewhere. But for Home Treatment, where there are no facilities for this, we advocate the **Sponge Bath** in preference to all others.

SLEEP.

The necessity for rest, for sound, undisturbed sleep, appertains to all human beings, no matter what their condition, and it is especially necessary in all cases of debility and invalidism, and in none more so than in Paralysis. The paralytic cannot grow strong or well on a restless couch. The night time is of all seasons nature's time for making repairs. It is a law of our being, that during the day—that is, during working hours—we exhale, throw off morbid products, which result from vital action, and during these wakeful hours we are wasting and exhausting our vital capital and during the hours of rest we absorb nutriment and sustenance from the air, while at the same time the mechanical part of our being quiets down to the minimum of vital expenditure. During these hours, exhalation and other expenditures practically cease (or nearly so), while the organism throughout undergoes renovation and repair. With the paralytic, whose vital force is almost bankrupt, this reparative action goes on necessarily, with comparative slowness, and hence the greater need of prolonging the period of absolute quiet, and ensuring that rest which is most complete. This law of rest applies to the entire organism. There is not a muscle or a fiber of the body which does not require sleep. Even the heart—that most active of all organs—has its periods of repose. In its action, which is, to casual observa-

tion, apparently continuous, there is a long beat, a short beat, and then a momentary interval of rest. It is but momentary, it is true, but it is a moment of rest for all that; and thus every third period of time is an interval of quiet—an interval of rest; so that, dividing the twenty-fours into tri-equal periods, there are eight hours of the day in which the heart may be said to be sleeping. And so of other and all the various organs and parts of the body. All of them need, and must have rest. It is because of this imperative necessity for good, sound sleep for all the body, that we venture to offer some suggestions relative to the subject. Not all persons sleep well; and paralytics, as a class, may be said to sleep poorly. Without entering into the philosophy of the subject, and giving the why and wherefore, we may state the fact, that to sleep at all, the relative circulation of the blood within the brain must be diminished, as compared with waking moments, and that measures which tend to effect this reduction of the circulation tend to give good, sound sleep. To this end applications of cold water to the head, and hot applications to the feet, are useful.

A hot foot-bath, just before retiring for the night, and bathing the head and face and neck in cold water, will be found salutary. The head should rest moderately high on the pillow, while no more bed-clothes should cover the body than are absolutely required for warmth. The head of the bed should be toward the north, on well-established magnetic principles; and in all cases of disturbed slumber, it will be well to insulate the bed, by setting the feet of the bedstead in glass cups. By this means the magnetism of the system is retained beyond the possibility of its being conducted away by communication with the floor.

The reasons for placing the head of the bed to the north may be briefly stated. It is an established fact, that if the body of a man be suspended from the middle, and accurately balanced, and left free to turn, it will swing round and round, and behave like a magnetic needle, finally settling with the head pointing due north. It is also a well-established fact, that the magnetic currents of the earth run from north to south, and not from east to west; and hence, judging from our knowledge

of the effects of artificial electric currents, a soothing effect is to be anticipated from lying in the course of those currents rather than across them. Better than all other reasons, however, is that derived from experience. The salutary effect of this course has many times been proven in my own practice, in the cases of debilitated persons who have slept more soundly, and gathered strength faster, when lying with the head to the north, than when lying on the same bed and with the same surroundings in other positions. The bed-room should be well ventilated. No one can sleep soundly and well in a close and illy-ventilated room. The best way of ventilating an occupied sleeping-room is to lower the upper, and raise the lower sashes each an inch or two, using the window farthest from the bed for this purpose. By this means the draft is confined mainly to the window.

NERVOUS EXHAUSTION AS A CAUSE OF PARALYSIS.

INCIPIENT PARALYSIS.

In speaking of the various causes which operate in the production of Paralysis, we purposely omitted to say anything, except by mere mention, of over-taxed brains, and the consequent exhaustion which results, as among these "causes," because the gravity of the subject, and its fearful commonness, renders it worthy of separate consideration.

The fact is, that as a people, we are fearfully overworked. We are a nation of thinkers. Our very system of education is based on the assumption that the future man or woman is to be nothing but *brain*, and that the cultivation and development of this organ is the all-requisite of success in life; or, if the body be taken into the account at all, it is regarded as simply an *appendage*, and unworthy of any serious consideration. So the mind receives all the attention, and the physical powers are neglected.

The result is as might be expected—a race of beings with big brains and small legs; smart young men with brilliant prospects, but without sufficient physical stamina to carry them through the first decade of actual contact with life. We have

in mind numbers of bright young men, who have entered the learned professions with high hopes, and who, before ten years, have been compelled to relinquish their labors, and commence to "recuperate"—chronic invalids at thirty, nervous and broken down before the realization of any of their bright dreams. And all this as the result of an over-development of the nervous, and a neglect of the physical portions of their organisms. This inharmonious state of things will make paralytics of some, lunatics of others, and nervous, dyspeptic, and debilitated wrecks of the rest.

Our business men suffer not less than those in the "professions." Multitudes of our successful merchants and bankers lay the foundation for affections of a paralytic nature, in such assiduous attention to what they are pleased to call their "duties," as saps their vitality and exhausts their nervous forces. How many of these infatuated men, blind to the fate before them, and bent only on the making of their "fortune," leave their counting-room or office at night, with "the head a mere furnace of red-hot brains, and the body a heap of burnt-out cinders," neglectful entirely of the means whereby only the brain may be cooled and the body recuperated and put in readiness for to-morrow's toil!

This state of things is kept up, and may be kept up for a time without serious inconvenience; but in the end, the fortune having been attained, the man awakes to realize its fearful cost in the matter of health. We meet men every week who have experienced this. They tell one story. They have ruined health and rendered life almost unendurable in the pursuit of gain; and now they are willing to give their fortune, everything, to regain their lost health.

Physiologists of eminence have given their opinion, that no man can spend more than *six hours* per day in severe mental labor without detriment.

Yet, how many of our business and professional men spend double this number of hours in the most arduous mental toil. Is it a wonder they break down under the excessive load? Exhaustion must follow, sooner or later, and we have seen scores of paralytics where the *cause* could not be found under any other

hypothesis. For such persons, who have even the slightest evidence of waning powers, such as persistent wakefulness at night, numbness in any part of the body, whether it be transient or permanent; pain of a dull, heavy, aching character, at the base of the brain; nervous tremors or twitchings of muscles—any or all these—nothing but freedom from care, and perfect relaxation of mind and body, with such attentions to the latter as will build up its neglected and waning powers, will prevent the occurrence of some form of paralysis, or some prostrating nervous illness, equally serious in its nature.

We speak advisedly on this subject. We have given it a large amount of attention, and we advance the unqualified opinion, that among the causes of Paralysis among merchants and professional men, there is no one cause so frequent as Nervous Exhaustion—the result of over-work of the brain, and under development and under-use of the organic system.

For such cases there is no remedy under heaven, but to reverse this order of things, and rest the mind, while the muscular organism is developed and perfected.

Where the symptoms above described exist in any considerable degree, they constitute the *incipient stage* of Progressive Paralysis, which is one of the most serious forms of the affection.

We have often had occasion to note the truth of this assertion, and could cite many cases in point. Let one example suffice: Mrs. A., aged 53, of nervous temperament, wearied with care, from attending on invalid parents, and exhausted by severe literary labors, consulted us two years ago, having suffered for some months with an increasing numbness in both limbs, accompanied with considerable loss of motive power. Indeed, from being barely perceptible at first, it had so far increased as to confine her to the house, and finally to her room; and at the time she applied to us for advice, she could walk only a few steps at a time. Its progress had, however, been slow, almost imperceptible. She had been confined to her room for some months. Her general health had suffered considerable from confinement. Two months' treatment restored her sufficiently to enable her to walk several squares without

fatigue, and as warm weather was at hand, she left our care to visit the sea shore, from which she returned in the fall, fully recovered, and able to walk several miles without inconvenience. A year after the cessation of treatment, she again fell into the same habits of life—writing all day and thinking all night—and again was compelled to resort to medical aid, and cease entirely her literary labors.

Such symptoms as those described above, can only result from a morbid condition of the nervous or muscular tissues, and in either case should on no account be neglected.

INFANTILE PARALYSIS.

The period of infancy is fraught with a multitude of painful and dangerous maladies, many of which have their origin in the nervous system. This fragile portion of the little one's being is indeed especially liable to disorder. Congestion of brain, convulsions, apoplexy, are the great dangers during the first few years of life.

During the period of dentition, or during the time intervening between twelve and twenty months of age, the system is very liable to be overwhelmed with the irritation and disturbed nutrition incident to the process. And if it do not produce apoplexy or convulsions, and destroy the life of the child, it is very apt to induce a peculiar form of Paralysis, which, unless removed by careful treatment, is almost sure to make the child, when grown up, a hopeless cripple. It is one of the most terrible accidents that can befall an infant; for the deformity is very difficult of removal after the lapse of a few years. Yet, it is one of the forms of Paralysis most amenable to treatment, if it be undertaken before there is any considerable shortening of limbs.

The history of these cases is sometimes peculiar. It often comes on without warning or pain, and, apparently, without any previous illness; and in such cases it is entirely independent of any appreciable lesion of the nervous system. It consists in a diseased condition of the proper tissues of the affected muscles, resulting from defective nutrition. It often attacks only a single muscle, or group of muscles, or the affection is confined to the

muscles of one arm or leg, or to those of the upper and lower extremities of one side, or of the two lower extremities. The loss of motion is often incomplete, and by the experienced is considered only *weakness*.

In other forms of Paralysis occurring in infancy, the loss, or diminution of the power of motion, is accompanied with intense pain, which is aggravated by every movement of the affected limb. Either of these forms of Paralysis may be preceded by convulsions, and may or may not be accompanied by a total or partial loss of *sensation*.

In all these cases the danger lies in the tendency to produce atrophy and degeneration of the tissues of the affected muscles, and thus produce deformity by arresting their development, or contracting the limbs. Oftentimes, when both lower limbs are effected, one of them speedily regains its lost power, and the hope is entertained that in a short time the other limb will also regain its power. This, however, is delusive. The limb which first commenced to mend continues to grow stronger until its full power is regained, while the other improves very tardily, if at all, and in the end falls far behind its fellow, and a permanently shortened leg is the result. This misfortune, if permitted, can never be atoned for. It need never happen, under judicious treatment. And, even when there is considerable shortening already, and extreme weakness, we have succeeded in removing the deformity and bringing the limb up to an equality with its fellow.

In no other cases of Paralysis is the efficiency of our treatment manifested more clearly than in these under consideration.

The means we employ consist mainly in keeping up the nutrition of the affected parts artificially, and stimulating the grow by restoring the circulation. These means are explained in another place, under the head of Treatment, and only differ for these cases in being adapted to the more delicate powers of a feeble organism.

THE ELECTRIC BATH.

There is a great amount of incredulity existing in regard to the merits of Electricity as a remedial agent.

Ignorant and unprincipled persons have so often used it, without producing any benefit; rushing about the country, claiming, with a few treatments, to be able to cure all diseases, whether organic or functional, that it is little wonder, that even this valuable agent should have fallen into some measure of disrepute. Respectable physicians, who have little or no practical knowledge of Electricity, have added to this feeling by resorting to its use, as a last resort in desperate cases, and being unskilled in its employment, and using no care in the selection of the electrical instrument, or the appropriate current, have failed to accomplish any good, as would naturally be expected from the hap-hazard employment of *any* agent.

The application of Electricity to the cure of disease is still in its infancy, and little is known regarding its therapeutic action, even by those who have made it a life study. Electricity is so subtle and powerful an agent as to be capable of doing great injury to the system when misapplied, and its employment should therefore be intrusted only to the careful few, who are humbly, but patiently investigating its action, and who possess the best means for so doing.

The unskilful handling of any means may be unproductive of good, while the means themselves in other hands may be of the greatest value. When Electricity has failed to answer reasonable expectations, as a remedial means, it is more than probable that, sometimes—not always—the operator should receive the blame, and not the agent.

Different kinds of Electricity produce entirely opposite effects on the system, and the different kinds require to be used at different stages in the progress of the same patient.

Quantity, direction, intensity of current, the manner of applying the current, whether in an unbroken stream, or in a series of delicate or powerful shocks, or in gently reversed currents, these all have their own peculiar effects, and require a careful and experienced physician to judge of the requirements of every individual case.

It is a fact, too, that the electrical condition of the system varies from day to day, and the same treatment which to-day may be beneficial, may to-morrow be entirely inadequate, or

even injurious. Is it any wonder, then, that where Electricity is used at random, it should do so little good, and so much harm?

But when it is used with care and discretion, and in accordance with the susceptibilities and requirements of the particular case in hand, it becomes a powerful ally to the *vital force* in overcoming obstructions, neutralizing poisons, and removing disease.

The action of Electricity on mercurial diseases is peculiar. The best authorities on the subject are of the opinion that it liquifies the mercury, and forces it out of the system. That it removes it from the system in some manner has been repeatedly proven by testing the water after a galvanic bath.

After such tests as those just named, the patient is not troubled any longer with those pains, so peculiar to the mercurial presence.

The same may be said of other poisons of a foreign nature in the body, and of the poisons generated within the system, such as the rheumatic, gouty, etc. There are no means at our command so potent for their removal as is to be found in Electricity.

The action of Electricity on the nervous system, when properly administered, is no less remarkable. It re-establishes the molecular equilibrium of the nerve tissues, corrects the disturbed polarity of nerve cells, and where the disturbance is purely functional, as in some forms of Neuralgia, Hysteria, and the like, it cures by stimulating and reinforcing the nerve centers.

In the treatment of Paralysis, when the patient is under our personal care, we employ the Electric Bath for the accomplishment of two objects. One being to rid the system of whatever poison, of a metallic nature or otherwise, which might be present to disturb functional action; and the other to reinforce and invigorate the nerve centers, which are always measurably depressed.

Whatever may be said of the employment of Electricity by others, and whatever arguments may be used to prove that the electric current is essentially different from the Life Force, or

animal magnetism, of this we are certain—we have demonstrated it a hundred times—under its influence, the vital forces are more active, the organs display greater functional activity, and strength, and power accumulate more rapidly.

The Electric bath, besides being so effective in removing the disease from the body, is one of the greatest of luxuries; there being no pain or unpleasant sensation attending upon it, only exhilaration and pleasure.

But valuable as we regard electricity when used with judgment and discretion, and by one who is skilled in its use, we deprecate its use by those who are not under our personal supervision.

It is capable of doing as much harm as it is good, and we have known many to be seriously injured by employing it unskillfully.

In the first place, the small, cheap batteries in common use, are generally utterly worthless.

The current of electricity they generate is one of *Intensity*, instead of *Quantity*—the former producing excitement and undue stimulation, while the latter is the current which allays excitement, while it warms and strengthens. In cases where we think electricity a necessity of cure, we shall advise its use by letter, and give such directions for its administration as will enable the patient to get what good he can out of his small instrument.

But we advise such persons not to trust to the self-use of electricity at all, under any circumstances; but when it is advisable to use it, the patient should go to some intelligent physician who understands its correct employment, and is prepared with the best facilities to use it profitably. A further reason for this advice is, that the only way to use electricity to the best advantage is in the Warm Bath.

By this means, the whole body, or any portion of it, may be permeated by the electric fluid, and the quantity and tension of the current be regulated to a nicety.

DURATION OF TREATMENT.

We are frequently asked the question, in letters we receive: "How long will it take to effect a cure?" a question which it is very difficult to answer with any precision, without seeing the case for which the question is asked; indeed, then it is usually difficult.

Some patients improve as much in a half-dozen weeks as others do in as many months, and this is often true, without any apparent reason for the difference. In some cases only partial treatment can be given at first, there being too much acute congestion and inflammation to make it safe to use means that are of the greatest importance after this condition has been overcome.

As a rule—to which, however, there are many exceptions—the longer the time the Paralysis has lasted, the more prolonged is the time of treatment. It may be stated that, in a majority of cases, patients feel an impression for good from the first day's treatment, and a constant, but gradual, improvement proceeds from day to day.

In some exceptional cases, however, but little effect is experienced during the first two or three weeks, though rapid improvement is made thereafter. We claim nothing of a miraculous nature for our treatment. It effects no instantaneous cures. If a cure is effected at all, it must, from the nature of things, be by a gradual process of *growth*—and this takes time.

We frequently meet with persons who seem to be exceedingly anxious to be cured; they "would give half they are worth to be well again;" but when assured that it is not so much a matter of money as time, and patient, persevering effort, that is most required to effect it, they turn sorrowfully away, and do not see how they can leave home or business for so long, or even devote the requisite time to the treatment at home. They would willingly make any sacrifice but that which is most necessary. Such persons must seek elsewhere for instantaneous recovery.

We have had cases recover, however, where the Paralysis had been of twenty years' standing. The natural vigor of constitution, general health, freedom from care and above all, *freedom*

of the system from drug poisons, are among the things which materially shorten the time necessary to effect a cure in any given case.

We never have been able to discover that *age*, of itself, has any material influence in precluding or protracting recovery when the general health remains good. In one of the best cases we have treated during the past year, the patient was over sixty.

In many of the cases we have treated, so much improvement has been gained in a few weeks or months as to permit the patient to resume his ordinary business, which is often so urgent as to make it impossible for us to influence him to continue the treatment till a perfect cure has been consummated.

CONCLUSION.

In concluding these pages, we have still a few words to say by way of counsel and encouragement.

It is no small thing to have been helpless for a series of months or years. It is no small damage to the integrity of the system which produces such derangements of function and impairment of power.

With a result so serious, it would be contrary to reason, as it is contrary to experience, to expect an instantaneous, or in bad cases, a very speedy repair of the damage done, and a restoration of full vigor.

What we promise to those who undertake our treatment, is a quick improvement, steadily continued. This promise will seldom disappoint. Out of hundreds of paralytics treated by us, less than a dozen have failed to receive material benefit, while many, who had despaired of even benefit, have been fully cured. We fully believe we are offering to paralytics their *only hope*. The ordinary treatment of any and every school of medicine, is confessedly impotent. By years of patient toil and study, we have elaborated a system of treatment, differing in almost every material point from that ordinarily in vogue; and the value of our system has undergone the severest tests—the test of the most obstinate cases and the test of time. It is a success. We could fill pages of testimonials

and congratulations, if such a course were desirable. We prefer to place the matter before the intelligence and good sense of paralytics, to be decided, for acceptance or rejection, upon its merits alone.

As to our remedies, referred to occasionally throughout the work, we have a word to say.

There is scarcely a paralytic who cannot be benefited by them, and to whom they are not an essential part of our system. Our large familiarity with paralysis has shown us that while the affection of the brain, or spinal cord, is primarily the seat of the disorder, it is usually prolonged, and complete reaction impeded, if not prevented, by imperfect performance of certain functions, which, oftentimes, may escape the observation of the unskillful physician, as well as the patient. The accompanying list of questions, when answered, will enable us to judge, with considerable accuracy, as to the needs of such an one, and we shall, when written to upon the subject, answer as candidly as we may, as to whether the directions herein contained are sufficient or not to effect a cure. In many cases these will be alone sufficient, but in others not. We shall never prescribe medicines where we can avoid it.

There are some cases of Paralysis so complicated in their causes and conditions, as to make it impossible for one to give intelligent advice without seeing them, and there are other cases requiring such delicate and careful handling, that *home* treatment is utterly out of the question. They need careful and constant medical attention, in an Institution where they can be under the watchful eye of a skillful physician. To such, our doors are always open with a cordial welcome. We have experienced and skillful attendants and nurses, whose duty it is to make such persons comfortable, and every facility and appliance for advancing and ensuring their recovery.

Finally, we exhort the paralytic, no matter how great his helplessness, nor how long he has been afflicted, to make one final effort toward health and renewed vigor, feeling certain as we do, that if our directions and treatment are faithfully carried out, disappointment will come to but few.

TERMS FOR CORRESPONDENCE.

Our terms for correspondence and home treatment are as follows:

Letters of *Inquiry*, containing stamp for return postage, **FREE**.

Letters stating case and asking advice, whether regarding diagnosis or treatment (in advance), . . . \$5 00

Letters stating case and asking for medicines (in advance), . . . \$10 00 to \$15 00

NOTE.—In such cases sufficient medicines are sent to last *one month*, and weekly letters of advice are expected, and sent, without further charge.

All letters should be written plainly, stating the name in full, Post-office address, County and State. When the Post-office and Express office are different, the same should be stated. Address

R. NEWTON TOOKER, M. D.,

No. 117 East Fifth Street,

CINCINNATI, OHIO.

APPENDIX.

THE HEALTH ESTABLISHMENT,

No. 117 East Fifth Street, Cincinnati, Ohio.

This Institution is designed especially for the accommodation and treatment of CHRONIC INVALIDS, and is situated in one of the most quiet and healthy parts of the city. Our house is large and commodious, and is fitted up with special regard to the wants of the sick, and especially of paralytics. Our Reception Room, Movement Rooms, Bath Rooms, Offices, etc., are all on the first floor, so that our patients need not fear going up and down stairs.

Our facilities for treating Chronic Invalids are unsurpassed. We use Electricity in all forms; the Movement Cure; Baths—all kinds. We use medicines also, whenever our other appliances are inadequate to meet the requirements of any given case; and for diseases of the Lungs, and all affections of the air passages, such as Catarrh, Asthma, Bronchitis and Consumption, we have the COMPOUND OXYGEN TREATMENT, which, in the affections just named, has proven almost a specific.

A special pamphlet on Affections of the Air Passages, and the application of Compound Oxygen, will be furnished on receipt of stamp.

All letters should be addressed :

R. NEWTON TOOKER, M. D.,

117 EAST FIFTH STREET.

CINCINNATI, O.



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Tooker, Robert Newton
The home treatment of paralysis.

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